

SONY®



Production Switcher Systems

MVS-8000A Series

DVS-9000 Series

The Perfect Answer to Creative Broadcasting Demands



The increased complexity of today's broadcasting calls for much quicker and reliable operability, and a higher level of system flexibility that can meet virtually every customer's specific production needs. Demands for more sophisticated content, together with high definition and DTV agendas, present even more challenges to live production operations. Responding to this dramatic transition, Sony has developed the MVS-8000A and DVS-9000 Series of Digital Switchers, providing unique solutions to such emerging requirements in both live and post-production environments. The DVS-9000 Series squarely addresses top-quality but cost-effective SD programming,

while the MVS-8000A Series offers top quality multi-format operation across a variety of SD and HD formats.

The design philosophy behind these switcher systems was to build an architecture based on extensive feedback from prominent technical directors and experienced engineers. The result is customizable control panels with highly intelligible indicators and buttons, advanced networking with system peripherals, integrated control and maintenance, powerful M/E functions and effects, complete system scalability, and special considerations for use in mixed PC and AV environments.

Due to their common architecture, MVS-8000A and DVS-9000 Series Switchers also share the same optional accessories,

including the control panel, remote panels, and peripherals.

Their system control structure and setup/effect data are also compatible, making it easy to establish a mixed MVS-8000A and DVS-9000 Series environment providing simultaneous SD and HD production.

What's more, the MVS-8000A and DVS-9000 Series Switchers can be further enhanced by the addition of two extremely powerful new optional software packages the "Plug-in Editor" and the "System Manager".

With the MVS-8000A and DVS-9000 Series, broadcasters and post-production facilities around the world will secure the optimal combination of high quality and return on investment.



Flexibility for Today and Tomorrow

MVS-8000A Series Multi-Format Switchers

MVS-8000A Series Digital Switchers are multi-format capable and can operate in any of the following formats:

1080i/60, 59.94, 50
1080p/30, 29.97, 25, 24, 23.976
720p/59.94, 50
480i/59.94
576i/50

DVS-9000 Series Standard Definition Switchers

DVS-9000 Series Digital Switchers are designed exclusively for standard definition and offer 525/625 switchable operation. The DVS-9000 Series builds on the advanced technology and cutting-edge architecture of the MVS-8000A Series, thus offering the same level of operational convenience and system flexibility. In addition, the system-control structure and setup/effect data are compatible with MVS-8000A Series Switchers, enabling the user to configure a mixed DVS/MVS environment.

Scalable Processor Configurations

The processors of both the MVS and DVS Series can be configured to suit the exact needs of each particular user in terms of operation, resolution, frame rate, number of I/Os, number of M/E banks, and more. Another great benefit is that these switchers can be upgraded as user needs grow, simply by installing the appropriate option board.

The MVS and DVS Series both offer the choice of a full-size or compact processor, depending on user needs and scale of operation. The full-size MVS-8000A and DVS-9000 Switcher processors can be configured for 2-, 2.5-, 3-, 3.5-, or 4-M/E operation. These processors also support up to 80 inputs, 48 assignable outputs, and 8 monitor outputs – enough for the largest of program requirements.

The compact MVS-8000ASF and DVS-9000SF Switcher processors can be configured for 1-, 1.5-, 2-, or 2.5-M/E operation. Both units are available with up to 34 inputs and 24 outputs.

On both the full-size and compact processors, all outputs can be assigned for program, preview, key preview, clean, or auxiliary. The optional Simple P/P Software adds simple mix/effect functionality including two keyers, background, and key transitions. This software upgrades 1-, 2-, and 3-M/E switcher processors to 1.5-, 2.5-, and 3.5-M/E, respectively.




Choose your definition.



Switcher processors

	Multi-format
2 to 4 M/E	MVS-8000A 8U 80 inputs and 48 outputs 8 monitor outputs Supports up to 8 (external) DME channels
1 to 2.5 M/E	MVS-8000ASF 4U 34 inputs and 24 outputs Supports up to 8 (external) DME channels

Any CCP-8000 and CCP-9000 control panels

Control panels

	CCP-8000 Customizable control panels
3.5 or 4 ME	
2.5 or 3 ME	
1.5 or 2 ME	

SDTV	
<p>DVS-9000 8U 80 inputs and 48 outputs 8 monitor outputs 4 DME channels</p> 	
<p>DVS-9000SF 4U 34 inputs and 24 outputs 4 DME channels</p> 	

Customizable Control Panel

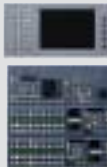

The MVS-8000A Series and DVS-9000 Series share the same control panels, which have been designed with special care and attention. Two control panel lineups are available: the customizable CCP-8000 Series and the compact CCP-9000 Series.

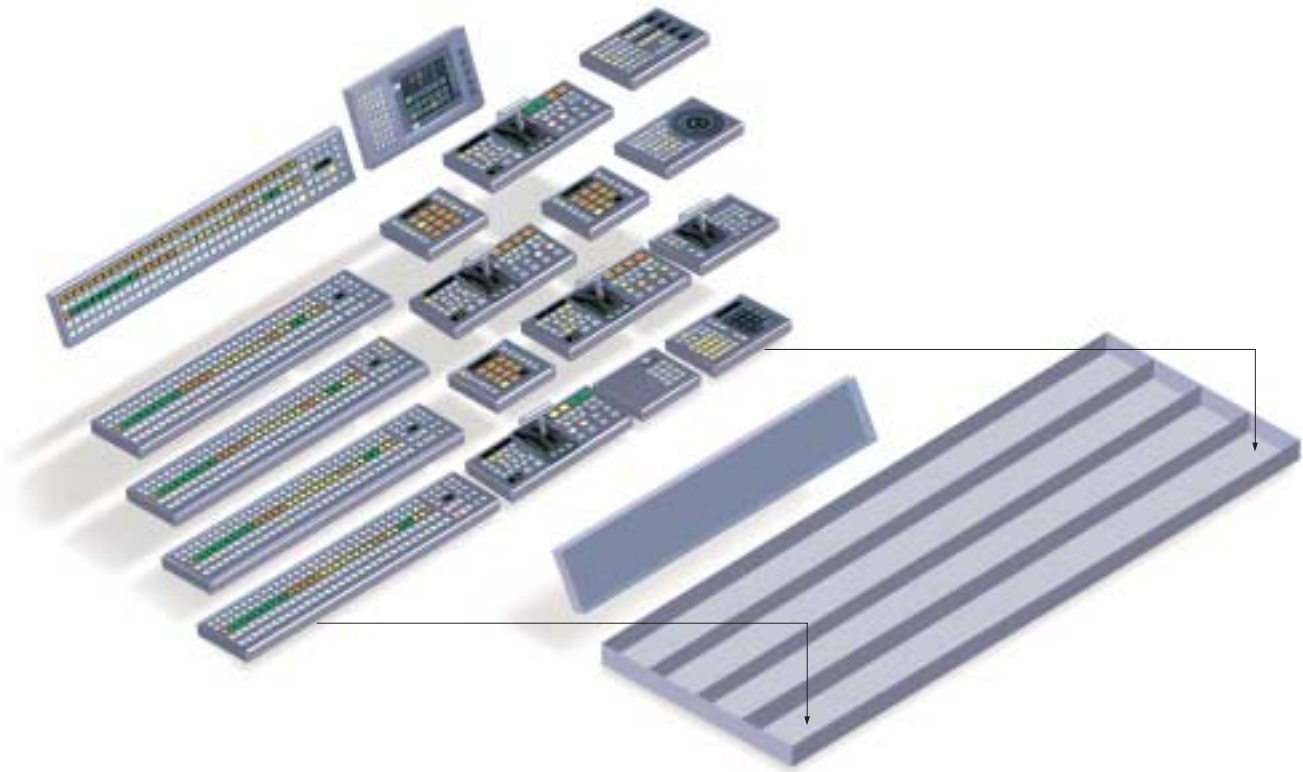
The CCP-8000 Series incorporates a modular design in which each control area is provided as a separate module. Users can locate modules in the M/E base chassis according to their personal layout preferences. The M/E base chassis is offered in 16-, 24-, or 32-

button styles, and M/E banks are available in 1.5-, 2-, 2.5-, 3-, 3.5-, or 4-M/E configurations. There are three choices of transition and key control modules, covering simple to complex video-layering requirements.

The CCP-9000 Series are compact control panels, available in 1-, 1.5-, or 2-M/E configurations with 12-crosspoint buttons and a built-in redundant power supply. These control panels are well suited for use in small-scale OB vehicles and edit suites, or as sub-M/E remote panels for the MVS/DVS Series.

Control panel can control any processor

CCP-9000 Compact control panels	
	1.5 or 2 ME
	1 ME



Comprehensive Control System

Networking Functions

The MVS and DVS Series provide sophisticated network capabilities to allow an extremely efficient and innovative style of operation. Two Ethernet-based networks are provided: the Control LAN and the Data LAN.

The Control LAN is a dedicated network that allows efficient resource sharing among MVS/DVS Series Switcher processors and CCP Series control panels.

Using this network, multiple control panels can simultaneously share a single switcher processor on an M/E basis (for efficient multi-tasking). Conversely, a single control panel can simultaneously control multiple switcher processors to deliver the same program in multiple formats.

The second network, the Data LAN, provides a connection across the MVS/DVS Series to all key components and Sony peripherals. This network is used for remote administrative tasks such as status monitoring, software upgrades, and configuration, as well as maintenance and facility-management tasks.

Image file transfers are also available for sharing graphics and titling resources. This second network can extend across a LAN or WAN and even reach out over the Internet via a gateway.

System Management Software

Sony System Management Software running on a PC enables integrated management of all Sony live-production products configured around and networked to the MVS/DVS Series Switchers. This function enables centralized control of MVS/DVS Series Switchers, PFV-SP Series Signal Processing Units, and other devices from a single user interface.

This system allows remote setup, maintenance, and operation of each device connected to the network, as well as efficient file management of setup, effect, and image data. In addition, remote control of the internal switcher frame memory is possible, allowing a second user to view and manipulate the images stored.

Two types of System Management Software are available: the BZPS-8000 server/client-type software and the BZPS-8000L standalone-type software. The BZPS-8000

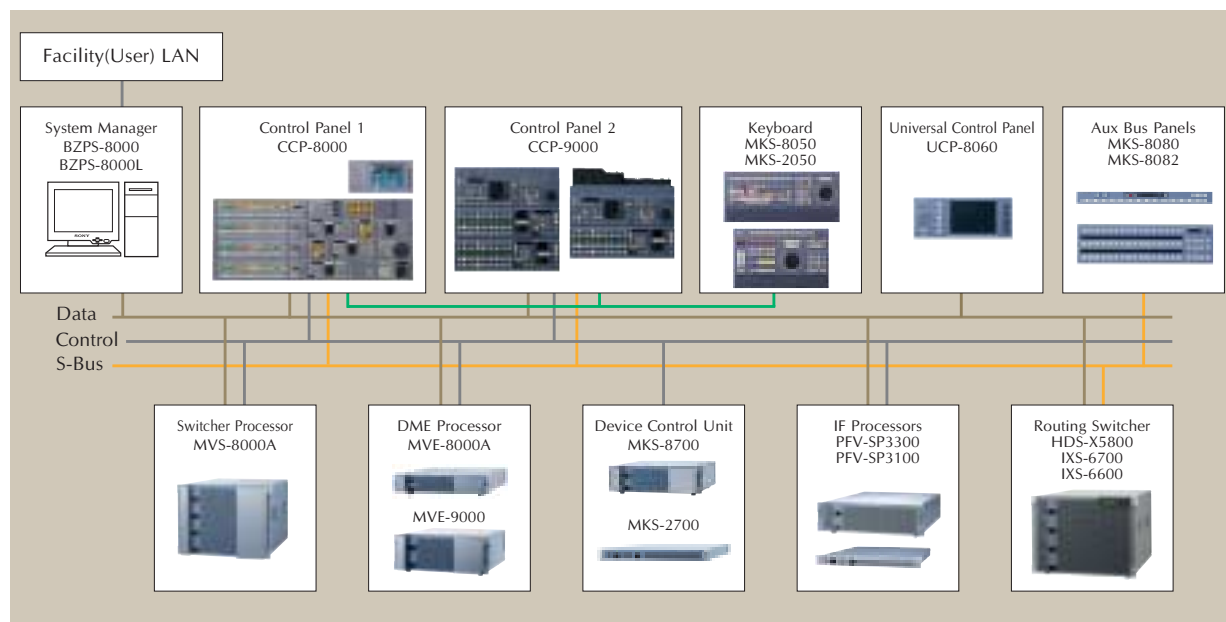
software is suitable for large-scale systems, and allows up to 10 client PCs to access the switchers via a server PC connected to the data LAN. In this type of configuration, the BZPS-8000 software^{*1} is installed onto every client PC and a single server PC. This system provides many features such as centralized management of setup, effect, and image files on a server PC. The other available software, the BZPS-8000L, can be installed onto just a single client PC, which can then be connected directly to the Data LAN, allowing for simple and cost-effective integration into the system.

^{*1} A single BZPS-8000 software license allows for installation on one server PC and multiple client PCs (see actual licenses for details).

Powerful Device Control

External VTRs, DDRs, and P-Bus devices can all be controlled directly from the MVS/DVS Series control panel using the Device Control Unit (MKS-8700 or MKS-2700). Each unit connects to the control panel and provides control of such external devices via RS-422A, P-Bus, or GPI. The MKS-8700 can have up to 30 RS-422A control ports or up to 270 GPIs, while the Comprehensive Control System MKS-2700 has 6 RS-422A ports and 34 GPIs as standard. Moreover, device control is provided on the same timeline as switcher events. When integrating a Sony disk protocol or VDCP-controlled disk recorder, clip management is provided allowing different server clips to be recalled and played back as part of a switcher timeline.

Efficient Control System



Plug-in Editing Control Software

One of the distinct advantages of this series of switchers is the ability to integrate machine control functions. The optional Plug-in Control Software and Editing Keyboards take this ability a stage further and add powerful linear editing capabilities to the MVS-8000A, DVS-9000 and MFS-2000 Series switchers.

The BZS-8050 Editing Control Software offers a similar level of functionality to the popular BVE-2000 Editor, plus some key functions available on the BVE-9100 Editor.

Furthermore, the software provides a variety of beneficial new features that include direct keys for source selection and direct device control from the plug-in editor.

Two types of editing keyboards are available – the MKS-8050 and MKS-2050 – which makes the Editing Control Software suitable for operations ranging from small-scale editing systems to large-scale post-production mastering.

A Character Superimpose function including Timecode and Recorder/Player status is available.

With the addition of these editing capabilities, Sony switchers are truly maximized for effectiveness in broadcast stations and post-production facilities.

Combining Sony switchers with Sony routing systems

The integration of MVS and DVS Series switchers with S-bus controlled routers such as IXS-6000 Series Routing Systems brings a number of great benefits such as bidirectional operational control, source name exchange, and tally management.

Crosspoints of the IXS-6000 Series can be selected via the AUX BUS module panel of the MVS-8000A or DVS-9000 switcher. They can also be recalled as a router snapshot via the control panel of the switcher.

Intelligent Tally Functions

MVS/DVS Series Switcher systems provide an intelligent and multi-functional tally system, which seamlessly integrates the switcher and router tally functions. Multiple on-air and recording tallies can easily be programmed on the switcher system – so that even complex tally requirements are catered to – and extra parallel tally ports can be obtained simply by adding tally boards to the MKS-8700 or by using the MKS-2700.

Using the S-BUS interface, the MVS/DVS Series Switcher systems can provide tally outputs to router control panels via a simple coaxial cable connection.



Expand Your Creativity

Independent M/E Architecture

Each M/E, including the PGM/PST bus, is equipped with powerful functionality. Snapshot settings, keyframe settings, and various setups such as crosspoint assignments, 4:3/16:9 modes, and bus toggle on/off can be independently designated per M/E. This architecture allows the user to efficiently assign multiple tasks to a single MVS/DVS Series processor when required.

Enhanced Frame Memory System

The high-capacity frame memory systems of MVS/DVS Series Switchers each have eight simultaneous outputs. The MVS-8000A Series can store 444^{*2} frames of SD or HD images, while the DVS-9000 Series can store 444 frames of SD images. Images can either be stored separately or paired for video/key operation.

An internal hard disk drive in the control panel provides additional storage for a greater number of frames. The memory buffer can sequentially recall frames at frame-rate so that short logo animations can be played. Stored video or graphics frames can easily be exchanged between the MVS/DVS Series Switcher and external PCs or graphic workstations via an Ethernet network or removable media.

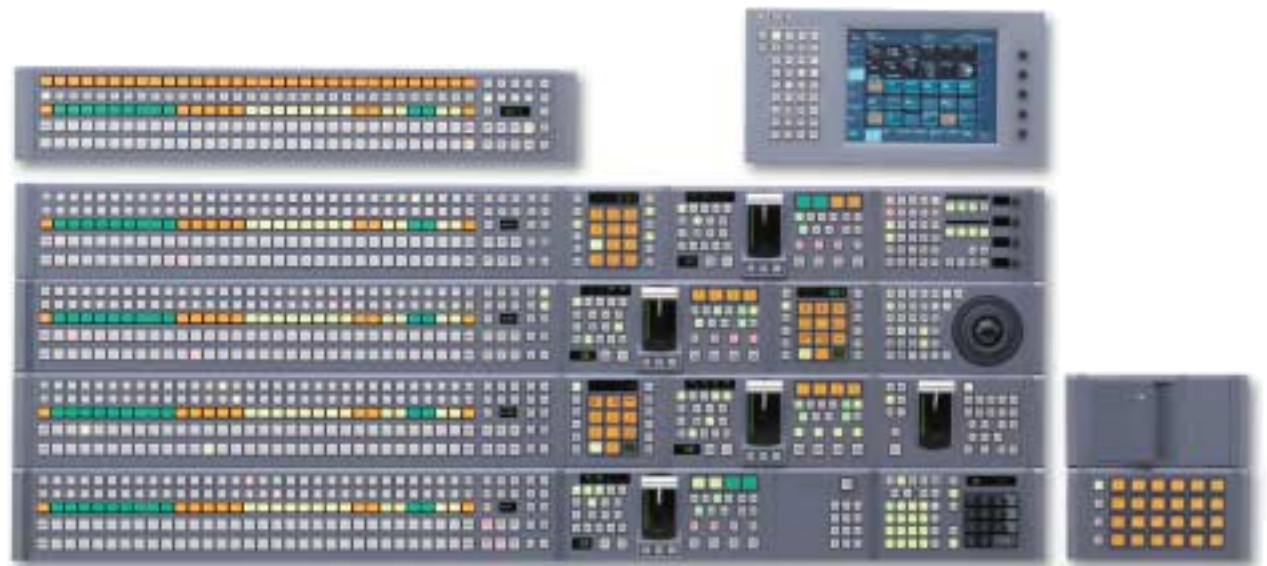
^{*2} In the future, it will be possible to expand this storage to 1033 frames by software upgrade. Installing an additional board could then double this to 2066 frames.

Versatile functions

The market-acclaimed Finekey technology allows fine adjustments of key position and border widths on a subpixel level within the range of 8H. Sony's unique Processed Key mode and DME-Link function are also provided, with additional power and convenience. Up to four video signals composed on the background can be processed through the DME within a single keyer, allowing for even greater operational flexibility.

Creative M/E Functionality

The MVS/DVS Series inherits many of the features of the well-proven DVS-7000 Series, but with significant enhancements. Each M/E on the MVS/DVS Series is equipped with four keyers, allowing sophisticated layering from a single M/E. Separate from the main fader, each keyer has its own auto-transition controls, which allow users to insert or remove keys on an individual basis with independent wipes, DME wipes, and dissolves. For further flexibility, each keyer in every M/E also offers chroma keying and color vector keying, eliminating restrictions of selectable key types. These fully featured M/Es allow total interoperability of effects on all M/Es.



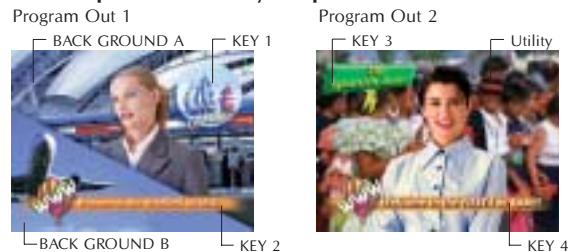
Multi-Program Mode

Multi-Program Mode, available on each M/E, enables four independent PGM outputs. Each output can contain any combination of the four M/E keyers over either the main M/E PGM or a utility bus background signal. This allows the user to perform "versioning" of the same program without the need to purchase an external keyer. Multi-Program 2³ Mode, which is an extended function of Multi-Program Mode, is also beneficial for expanding the use of the system mix effects banks. This function allows one M/E to be separated into two sections – a main M/E and a sub M/E – enabling the user to create two programs within a single M/E.

<For Multiple Language Applications>



<For Independent Secondary Composition>



What's more, Multi Program 2 Mode also enables two independent PGM outputs at the same time even when there are only enough resources to create one program. This is convenient especially when simultaneously broadcasting sports such as baseball and football for two different destinations (areas of home and away teams for example). With this mode, one operator can create two programs that are each tailored for these destinations on a single switcher. (Fig 1)

Keyers can be inserted into both the main and sub programs as shown below. (Fig 2)

³The BZS-8200 Multi-Program 2 Software is required. This function is only available on MVS-8000A and MVS-8000ASF systems.

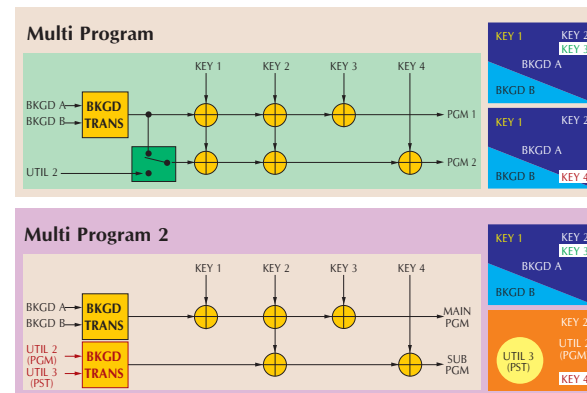


Fig 1 Multi-Program Block Diagram



Fig 2 "Home and Away" Operation

Side Flags function⁴

Side Flags is a function that allows a 4:3 image to automatically form a 16:9 image by adding desired graphics to both sides of the 4:3 image. This is convenient when handling 4:3 and 16:9 material at the same time. When any 4:3 material is selected as a crosspoint, a 16:9 image can be created using dedicated hardware that does not compromise system functionality, i.e., without the use of any keyer in each M/E. In addition, "Crop" mode is provided when 4:3 pictures are used in DME Wipe operations. This mode allows the margins between 16:9 and 4:3 pictures to be cropped if desired. Furthermore, if this 4:3 image is used in the next background picture, it appears as a 16:9 picture accompanied with pre-assigned "side flags" graphics. In this case, the Side Flags portions appear like vertical wipe effects.

⁴This function is not supported in SD mode.

Easy and Efficient Operation

MVS/DVS Series Switchers have a large color touch-screen menu for efficient and intuitive system control. Button indications have also been greatly enhanced over previous generation switchers. Crosspoint source-name displays, FlexiPad™, and Shot Box™ buttons all incorporate a backlit three-color LCD indicator to which preset pattern icons or text can be imported and displayed. These indicators help to keep the operator informed of crosspoint and button assignments at all times.

Optional remote-control panels, such as AUX Bus Remote, Keyer Remote (Universal Control Panel), and M/E Remote panels, allow convenient operating environments for live use.

Programmable Macros

Having a dedicated button for each function on the MVS/DVS Series is handy, but MVS/DVS Series Switchers take operational convenience a step further. The MVS/DVS Series makes it easy to program macros. Using the FlexiPad module or the 10-key pad module, users can simply record operational sequences, then store and assign them to any desired button. Macros are extremely useful in live environments when time is critical and there is no tolerance for making operational mistakes. Once programmed, macros can be edited either directly from the control panel or by using the touch-screen menu display.

Sophisticated Digital Multi-Effects (DME)

For MVS-8000A Switcher

MVE-8000A

The MVE-8000A DME processor is integrated with the MVS-8000A Series Switcher processor via a dedicated video interface that avoids sacrificing the switcher's input and output capability. This integrated DME processor supports the same multiple frame rates as the MVS Switcher, and all resolutions and frame rates are supported without board swapping. Up to eight channels of integrated DME can be fitted when two DME processors are connected. Each channel is freely assignable to any key or transition in the MVS Switcher.

4:3/16:9 mode selection, global axis control, and multiple-timeline capability are independently supported for each DME channel. In addition to providing the same variety of standard effects commonly used today, the functionality and operability of this DME has been especially refined for live production. This new level of close integration between switcher and DME results in creative preset patterns.

MVE-9000

The MVE-9000 Multi-Format DME Processor is another highly advanced DME Processor for the MVS-8000A Series Switcher. In addition to the features sets provided by the MVE-8000A, it provides stunning picture quality and a wide assortment of features for the creation of striking special effects in live events and post-production. A rich variety of effects are provided, such as Depth Combine, Dim/Fade, Wipe Crop, Art Edge, Key Border, Spot Lighting, Texture Lighting, Flex Shadow, and Wind – as well as other effects available on the MVE-8000A.

For DVS-9000 Series Switcher

BKDS-9470

The DVS-9000 Series Switcher processor offers four channels of high-quality DME by installing the BKDS-9470 DME Board Set. Each DME channel provides external video input for use as the background or border/trail source. The four SDI monitor outputs on the DME board allow monitoring of either the video with graphic, the video without graphic, or the key. This DME board can perform 2D, 3D, and nonlinear effects including Digital SKETCH, Digital SPARKLE, and up to four channels of Intersect Combine. Also, powerful lighting effects can be added to nonlinear and 3D-effect patterns, with easy setup of the color and shape for the light source.

Texture Lighting Software

The optional Texture Lighting Software is supported for both the MVE-9000 Multi-Format DME processor and the DVS-9000 Series Switcher processor with the optional BKDS-9470 DME board set installed.

This software adds a texture lighting function that enables the user to map a texture pattern onto a DME effect using the spotlight function. The Real Lighting Function can add realistic lighting to several nonlinear effect patterns. Up to four light sources are available per DME channel. With its Test Sphere Function, the position and brightness of light sources can be confirmed with ease.

It's the advent of a new generation in creative programming for broadcast stations and post-production facilities.

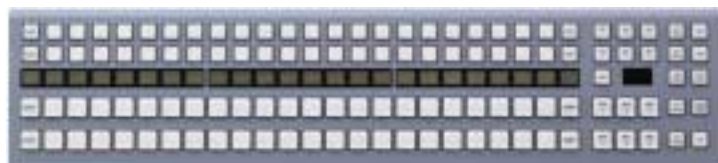


System Configuration

Center Control Panel CCP-8000 Series



32 XPT MODULE MKS-8017A



24 XPT MODULE MKS-8018A



16 XPT MODULE MKS-8019A



32 AUX BUS MODULE MKS-8013A



24 AUX BUS MODULE MKS-8014A



16 AUX BUS MODULE MKS-8015A



STANDARD TRANSITION MODULE MKS-8020A



SIMPLE TRANSITION RIGHT MODULE MKS-8021A



SIMPLE TRANSITION COMPACT R MODULE MKS-8021ASC



SIMPLE TRANSITION LEFT MODULE MKS-8022A



SIMPLE TRANSITION COMPACT L MODULE MKS-8022ASC



COMPACT KEY TRANSITION MODULE MKS-8023AB



COMPACT TRANSITION RIGHT MODULE MKS-8027A



COMPACT TRANSITION LEFT MODULE MKS-8028A



10-KEY PAD MODULE MKS-8026A



KEY FRAME MODULE MKS-8030A



TRACK BALL MODULE MKS-8031ATB



JOYSTICK MODULE MKS-8031AJS



DSK FADER MODULE
MKS-8032A



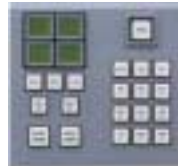
FLEXIPAD MODULE
MKS-8024A



BLANK PANEL
MKS-8041



UTILITY/SHOT BOX MODULE
MKS-8033A



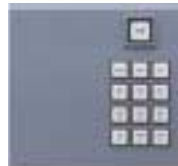
DSK/FTB MODULE
MKS-8034ADK



BLANK PANEL
MKS-8040



KEY CONTROL MODULE
MKS-8035A



FTB MODULE
MKS-8034AFB



BLANK PANEL(1/6)
MKS-8042



MEMORY STICK™/USB MODULE
MKS-8025MS



MENU PANEL
MKS-8011A



SYSTEM CONTROL UNIT MKS-8010A
BACKUP POWER SUPPLY UNIT HK-PSU02
PANEL CABLE SWC-5002/5005/5010
EXTENSION ADAPTOR MKS-8075
MEMORY CARD USB ADAPTOR MKS-8076

Center Control Panel CCP-9000 Series



1 M/E Control Panel
MKS-9011A



2 M/E Control Panel
MKS-9012A

Remote Panel



UNIVERSAL CONTROL PANEL (*)
UCP-8060



AUX BUS REMOTE PANEL (*)
MKS-8080



AUX BUS REMOTE PANEL (*)
MKS-8082

(*) Rack-mount brackets for these panels are included.

Switcher Processors

MULTI-FORMAT SWITCHER PROCESSOR



MVS-8000A



MVS-8000ASF

PRODUCTION SWITCHER PROCESSOR



DVS-9000



DVS-9000SF

17-Input Board
Additional 12-Input Board
24-Output Board SET
8-Monitor Output Board
DME Interface Board
Mix/Effect Board
Color Corrector Board
Frame Memory Board

Multi Program 2 Software
Simple P/P Software

Power Supply Unit

MKS-8110M
MKS-8111M ^(*)
MKS-8160A ^(*)
MKS-8161M ^(*)
MKS-8162A ^(*)
MKS-8170M
MKS-8210A
MKS-8420M
MKS-8440A

BZS-8200
BZS-8250

HK-PSU04

^(*) For MVS-8000A only
^(*) For MVS-8000ASF only

Note: The MVS-8000A is supplied with one 17-input board, one 24-output board, two mix/effect board sets, and two power supply units. The MVS-8000ASF is supplied with one 17-input board, one 12-output board, one mix/effect board set, and one power supply unit.

24-Output Board Set
8-Monitor Output Board
12-Output Board
Mix/Effect Board
DME Board Set
17-Input Board
Additional 12-Input Board

Simple P/P Software
Color Corrector Software
Texture Lighting Software

Power Supply Unit

BKDS-9160 ^(*)
BKDS-9161 ^(*)
BKDS-9162 ^(*)
BKDS-9210
BKDS-9470
MKS-8110SD
MKS-8111SD ^(*)

BZS-9250
BZS-9420
BZS-9471

HK-PSU04

^(*) For DVS-9000 only
^(*) For DVS-9000SF only

Note: The DVS-9000 is supplied with one 17-input board, one 24-output board, two mix/effect board sets, one frame memory board set, and two power supply units. The DVS-9000SF is supplied with one 17-input board, one 12-output board, one mix/effect board set, one frame memory board set, and one power supply unit.

DME Processor



MULTI-FORMAT DME PROCESSOR MVE-8000A

MVS INTERFACE BOARD MKE-8020A

INPUT/OUTPUT BOARD (for SDI) MKE-8021A

EFFECTS BOARD MKE-8040A

POWER SUPPLY UNIT HK-PSU-02



MULTI-FORMAT DME PROCESSOR MVE-9000

MVS INTERFACE BOARD MKE-9020M

INPUT/OUTPUT BOARD MKE-9021M

ADVANCED EFFECTS BOARD MKE-9040M

TEXTURE LIGHTING SOFTWARE BZDM-9050

Plug-in Editor

EDITING CONTROL SOFTWARE BZS-8050



EDITING KEYBOARD MKS-8050



EDITING KEYBOARD MKS-2050

System Management Software

System Management Software BZPS-8000

System Management Software (Standalone type)

BZPS-8000L

Switcher Setup Software BZPS-8001

Device Control Unit



DEVICE CONTROL UNIT MKS-8700

TALLY/GPI OUTPUT BOARD MKS-8701

SERIAL INTERFACE BOARD MKS-8702

BACKUP POWER SUPPLY UNIT HK-PSU-03



DEVICE CONTROL UNIT MKS-2700

BACKUP POWER SUPPLY UNIT HK-PSU-01

Routing System



Integrated Routing System IXS-6700



Integrated Routing System IXS-6600

HD/SD Digital Video Input Board IKS-V6010M

SD Digital Video Input Board IKS-V6010SD

D-sub AES/EBU Input Board IKS-A6011

BNC AES/EBU Input Board IKS-A6012

RS-422A Input Board IKS-RS6010

Matrix Board IKS-6030M

HD/SD Video Router Processor Board IKS-V6050M

SD Video Router Processor Board IKS-V6050SD

Audio/Data Router Processor Board IKS-A6050

HD/SD Digital Video Output Board IKS-V6060M

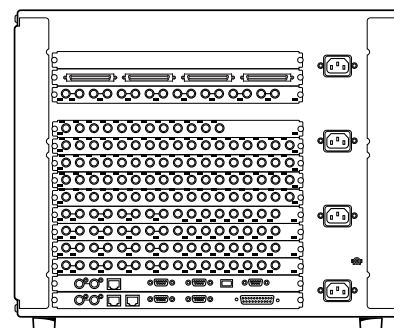
SD Digital Video Output Board IKS-V6060SD

D-sub AES/EBU Output Board IKS-A6061

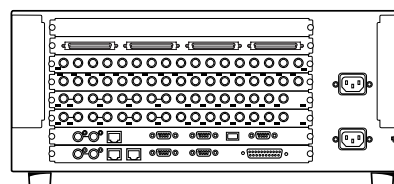
BNC AES/EBU Output Board IKS-A6062

RS-422A Output Board IKS-RS6060

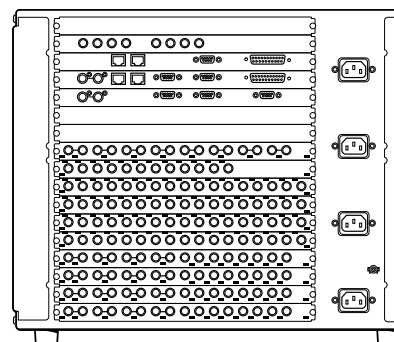
Rear Panel



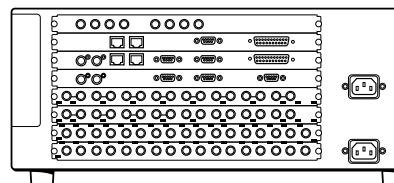
MVS-8000A



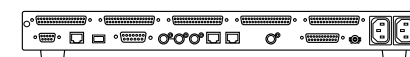
MVS-8000ASF



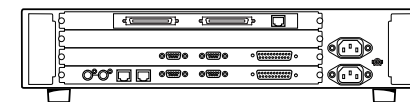
DVS-9000



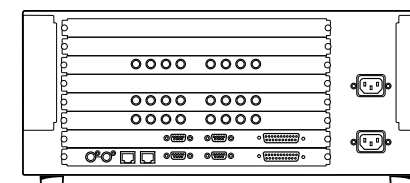
DVS-9000SF



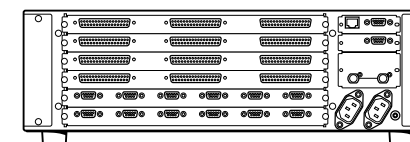
MKS-8010A



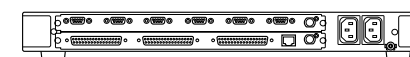
MVE-8000A



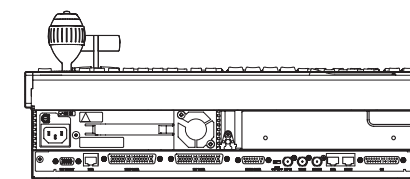
MVE-9000



MKS-8700



MKS-2700



MKS-9011A/9012A

The figures show the rear panels in which optional boards are installed.

Specifications

General		
Power requirement		AC 100 to 240 V, $\pm 10\%$ 50/60 Hz
Power consumption		
MVS-8000A		15 to 6.25 A
MVS-8000ASF		7.5 to 3.1 A
DVS-9000		8.6 to 4.2 A
DVS-9000SF		5.5 to 2.5 A
CCP-8000 Series		2.5 to 1.1 A
CCP-9000 Series		1.1 to 0.5 A
MVE-8000A		2.5 to 1.0 A
MVE-9000		6.0 to 2.5 A
MKS-8700		1.4 to 0.8 A
MKS-2700		0.7 to 0.5 A
Operating temperature		5°C to 40°C (41°F to 104°F)
Storage temperature		-20°C to +60°C (-4°F to +140°F)
Operating humidity		10% to 90% (Non-condensing)
Dimensions (W x H x D)		
MVS-8000A		482 x 354 x 520 mm (19 x 14 x 20 1/2 inches)
MVS-8000ASF		482 x 176 x 520 mm (19 x 7 x 20 1/2 inches)
DVS-9000		482 x 354 x 520 mm (19 x 14 x 20 1/2 inches)
DVS-9000SF		482 x 176 x 520 mm (19 x 7 x 20 1/2 inches)
CCP-8000 Series	Main Panel	4 M/E, 32-crosspoint buttons: 1443 (with mount bracket) x 98.5 x 528 mm (56 7/8 x 4 x 20 7/8 inches) 3 M/E, 24-crosspoint buttons: 1291 (with mount bracket) x 98.5 x 528 mm (50 7/8 x 4 x 20 7/8 inches) 2 M/E, 16-crosspoint buttons: 1139 (with mount bracket) x 98.5 x 396 mm (44 7/8 x 4 x 15 5/8 inches)
	Auxiliary Bus Panel	32-crosspoint buttons: 782 (with mount bracket) x 132 x 80 mm (30 7/8 x 5 1/4 x 3 1/4 inches) 24-crosspoint buttons: 630 (with mount bracket) x 132 x 80 mm (24 7/8 x 5 1/4 x 3 1/4 inches) 16-crosspoint buttons: 478 (with mount bracket) x 132 x 80 mm (18 7/8 x 5 1/4 x 3 1/4 inches)
	Menu Panel	424 x 220 x 46 mm (16 3/4 x 8 3/4 x 1 13/16 inches)
	System Control Unit	482 x 43.6 x 520 mm (19 x 1 3/4 x 20 1/2 inches)
CCP-9000 Series	1 M/E Control Panel	440 x 175 x 385.3 mm (17 3/8 x 7 x 15 1/4 inches)
	2 M/E Control Panel	440 x 186.6 x 442 mm (17 3/8 x 7 3/8 x 17 1/2 inches)
	Menu Panel	424 x 220 x 46 mm (16 3/4 x 8 3/4 x 1 13/16 inches)
MKS-8700		482 x 132 x 520 mm (19 x 5 1/4 x 20 1/2 inches)
MKS-2700		440 x 43.6 x 520 mm (17 3/8 x 1 3/4 x 20 1/2 inches)
MVE-8000A		440 x 87.5 x 520 mm (17 3/8 x 3 1/2 x 20 1/2 inches)
MVE-9000		482 x 194 x 520 mm (19 x 7 3/4 x 20 1/2 inches)
Memory Card/USB Adaptor		263 (with mount bracket) x 132 x 78.5 mm (10 3/8 x 5 1/4 x 3 1/8 inches)
Extension Adaptor		263 (with mount bracket) x 132 x 78.5 mm (10 3/8 x 5 1/4 x 3 1/8 inches)
Mass (Approx.)		
MVS-8000A		51 kg (112 lb 7 oz) (fully loaded)
MVS-8000ASF		28 kg (61 lb 12 oz) (fully loaded)
DVS-9000		43 kg (94 lb 13 oz)
DVS-9000SF		25 kg (55 lb 8 oz)
CCP-8000 Series	Main Panel	4 M/E, 32-crosspoint buttons: 30 kg (66 lb 2 oz)
	Auxiliary Bus Panel	32-crosspoint buttons: 3.7 kg (8 lb 2 oz)
	Menu Panel	2.2 kg (4 lb 13 oz)
	System Control Unit	11.5 kg (25 lb 6 oz)
CCP-9000 Series	Main Panel	2 M/E, 12-crosspoint buttons: 12.5 kg (27 lb 9 oz) 1 M/E, 12-crosspoint buttons: 11.5 kg (25 lb 6 oz)
	Menu Panel	2.2 kg (4 lb 13 oz)
MKS-8700		8 kg (39 lb 10 oz) (fully loaded)
MKS-2700		9.8 kg (21 lb 10 oz)
MVE-8000A		16 kg (35 lb 4 oz) (fully loaded)
MVE-9000		27 kg (59 lb 8 oz) (fully loaded)
Memory Card/USB Adaptor		1.2 kg (2 lb 10 oz) (with module)
Extension Adaptor		1.5 kg (3 lb 4 oz) (with module)

Video inputs/outputs	
MVS-8000A/8000ASF	
Primary inputs	MVS-8000A: Max. 80/MVS-8000ASF: Max. 34, BNC x 1 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Assignable outputs	MVS-8000A: Max. 48/MVS-8000ASF: Max. 24, OUT 1 to 4, 13 to 16, 25 to 28, 37 to 40: BNC x 2 each OUT 5 to 12, 17 to 24, 29 to 36, 41 to 48: BNC x 1 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	MVS-8000A: Max. 8, BNC x 2 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Integrated DME I/O	68-pin x 4, LVDS
DVS-9000/9000SF	
Primary inputs	DVS-9000: Max. 80/DVS-9000SF: Max. 34, BNC x 1 each SMPTE259M-C (SDTV)
Assignable outputs	DVS-9000: Max. 48/DVS-9000SF: Max. 24, OUT 1 to 4, 13 to 16, 25 to 28, 37 to 40: BNC x 2 each OUT 5 to 12, 17 to 24, 29 to 36, 41 to 48: BNC x 1 each SMPTE259M-C (SDTV)
Monitor outputs	DVS-9000: Max. 8, BNC x 2 each SMPTE259M-C (SDTV)
Built-in DME	
External inputs	BNC x 4 SMPTE259M-C (SDTV)
Monitor outputs	BNC x 4 SMPTE259M-C (SDTV)
MVE-8000A	
MKE-8020A	
Video inputs/Video outputs	
MVS interface	MDR 68-pin x 2 (inputs/outputs: 2 CH x 2), LVDS
MKE-8021A	
Video inputs	
Video/Key	BNC x 8, SDI
Video outputs	
Video/Key	BNC x 8, SDI
Monitor outputs	BNC x 4, SDI
MVE-9000	
MKE-9020M	
Video inputs/Video outputs	
MVS interface	MDR 68-pin x 2 (inputs/outputs: 2 CH x 2), LVDS
MKE-9021M	
Video inputs	
Video/Key	BNC x 8, SDI
Video outputs	
Video/Key	BNC x 8, SDI
Ext Video In	BNC x 4, SDI
Monitor outputs	BNC x 4, SDI

Reference	
MVS-8000A/8000ASF, DVS-9000/9000SF, Device Control Unit, DME Processor, System Control Unit	
Reference inputs	BNC x 2, 75 Ω with loop-through output HDTV systems: HD tri-level sync/SDTV analog sync SDTV systems: Analog black burst/analog sync
MVS-8000A/8000ASF, DVS-9000/9000SF	
Reference outputs	BNC x 1, 75 Ω HDTV systems: HD tri-level sync SDTV systems: Analog sync
MVE-8000A	
Reference inputs	BNC x 2, 75 Ω with loop-through output Analog black burst or HD tri-level sync
MVE-9000	
Reference inputs	BNC x 2, 75 Ω with loop-through output Analog black burst or HD tri-level sync

Control	
MVS-8000A/8000ASF	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Remote 1 to 4	D-sub 9-pin, RS-422A
Terminal	D-sub 9-pin, RS-232C
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
Extension	BNC x 1
DVS-9000/9000SF	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Remote 1 to 4	D-sub 9-pin, RS-422A
Terminal	D-sub 9-pin, RS-232C
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
Extension	BNC x 1
Built-in DME	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Editor 1 to 4	D-sub 9-pin, RS-422A
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
CCP-8000 Series (System Control Unit)	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Peripheral LAN	RJ-45 x 1, 100BASE-TX
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
REMOTE	BNC x 1, S-BUS
LTC input	BNC x 1
Device	USB-type A
Main Panel	D-sub 50-pin
Menu Panel	D-sub 50-pin
Ext Panel 1 to 3	D-sub 50-pin
CCP-9000 Series	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Peripheral LAN	RJ-45 x 1, 100BASE-TX
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
REMOTE	BNC x 1, S-BUS
Device	USB-type A
Main Panel	D-sub 50-pin
Menu Panel	D-sub 50-pin
Ext Panel	D-sub 50-pin
MVE-8000A (DME Processor)	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
REMOTE	D-sub 9-pin x 4, RS-422A
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
MVE-9000 (DME Processor)	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
REMOTE	D-sub 9-pin x 4, RS-422A
GPI	D-sub 25-pin x 2, dry contact or open collector inputs x 16, relay contact outputs x 8, open collector outputs x 8
MKS-8700 (Device Control Unit)	
Peripheral LAN	RJ-45 x 1, 100BASE-TX
Serial tally 1 to 2	D-sub 9-pin, RS-422A
TALLY/GPI inputs	D-sub 37-pin x 3, TTL level inputs x 34 each
TALLY/GPI outputs *	D-sub 37-pin, relay contact outputs 18ch, up to 270 ch in step of 5 ch in a frame
REMOTE *	D-sub 9-pin, RS-422A, various protocols, up to 30 ports in steps of 6 ports in a frame
MKS-2700 (Device Control Unit)	
Peripheral LAN	RJ-45 x 1, 100BASE-TX
TALLY/GPI inputs	D-sub 37-pin x 1, TTL level inputs x 34
TALLY/GPI outputs	D-sub 37-pin x 2, TTL level inputs x 18 each
REMOTE	D-sub 9-pin x 6, RS-422A, various protocols

*TALLY/GPI and REMOTE ports are alternatively installed. Mixed configuration of TALLY/GPI and REMOTE ports is supported.

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